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Title: Nondestructive Analysis of MET-5 Paint Can at TA35 Building 2 A-Wing Vault.

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In Building 2 A-wing vault MET-5 has some drums and other packages they wanted NEN-1 help identifying nondestructively.

Measurements using a mechanically cooled portable high purity germanium HPGe Ortec detective were taken of a paint can container labeled DU-2A to determine if any radioactive material was inside. The HPGe detector measures the gamma rays emitted by radioactive material and displays it as a spectrum. The spectrum is used to identify this radioactive material by using appropriate analysis software and identifying the gamma ray peaks.

A paint can container, DU-2A, was analyzed with PeakEasy 4.84 and FRAM 5.2. The FRAM report is shown below. The enrichment is 0.091% U235 and 99.907% U238. This material is depleted uranium. The measurement was performed in the near field and to extract a mass a far field measurement will need to be taken.

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PC FRAM (5.2) Isotopic Analysis 19-Oct-2016 09:00:03

(Fixed energy Response function Analysis with Multiple efficiencies)

Operator ID:

spectrum source: C:\Hold_up\A-Wing\018 IDENT 2016-10-06 12.21.59.Chn

spectrum date: 06-Oct-2016 12:22:00

live time: 155 s

true time: 158 s

num channels: 8192

parameter set: u_detective_120-1010 (2016.10.19 08:59)

U235 < 80%, 0.366 keV/ch, Detective

Empirical Efficiency, Gain 0.366 keV/ch, Offset 0 keV

results file: C:\FRAMdata\Results\018 IDENT 2016-10-06 12.res

comment:

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***Failed to calculate tail - will use defaults.

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at 185.715 keV, centroid = 508.972 [505.900 < ? < 508.900]

at 1001.030 keV, centroid = 2746.000 [2731.000 < ? < 2739.000]

at 185.715 keV, low E tail %(meas-fit)/area = 7.104 +- 4.984 [? < 0.500]

at 185.715 keV, high E tail %(meas-fit)/area = 6.623 +- 4.962 [? < 0.400]

(By Corr)

	U234	U235	U236	U238
mass%	< .0001	0.0915	0.0007	99.9077
sigma	0.0013	0.0339	0.0003	0.0340
%RSD	>99.99%	37.08%	34.94%	0.03%
%TotPwr	1.42	0.54	0.12	97.66

Specific Power (W/gU): (0.0102 +/- 0.0024)e-006 (23.06%)

Relative mass (Th228 / U): 1.416e-013 (90.04%)

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